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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b)

Attorney Docket No. 03646.P013x Total Pages 2

First Named Inventor or Application Identifier Swain W. Porter

Express Mail Label No. EL431685876US

ADDRESS TO: **Assistant Commissioner for Patents**
Box Patent Application
Washington, D. C. 20231

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. X Fee Transmittal Form
(Submit an original, and a duplicate for fee processing)

2. X Specification (Total Pages 31)
(preferred arrangement set forth below)
- Descriptive Title of the Invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings (if filed)
- Detailed Description
- Claims
- Abstract of the Disclosure

3. X Drawings(s) (35 USC 113) (Total Sheets 10)

4. X Oath or Declaration (Total Pages 4)

   a. X Newly Executed (Original or Copy)

   b. ___ Copy from a Prior Application (37 CFR 1.63(d))
   (for Continuation/Divisional with Box 17 completed) **(Note Box 5 below)**

   i. ___ DELETIONS OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).

5. ___ Incorporation By Reference (useable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6. ___ Microfiche Computer Program (Appendix)

7. __ Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)
a. ____ Computer Readable Copy
b. ____ Paper Copy (identical to computer copy)
c. ____ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. _____ Assignment Papers (cover sheet & documents(s))
9. _____ a. 37 CFR 3.73(b) Statement (where there is an assignee)
_X_ b. Power of Attorney
10. _____ English Translation Document (if applicable)
11. _____ a. Information Disclosure Statement (IDS)/PTO-1449
_____ b. Copies of IDS Citations
12. _____ Preliminary Amendment
13. _X_ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
14. _X_ a. Small Entity Statement(s)
b. Statement filed in prior application, Status still proper and desired
15. _____ Certified Copy of Priority Document(s) (if foreign priority is claimed)
16. _X_ Other: separate sheet with title, express mail label, copy of postcard and attorney's signature

17. **If a CONTINUING APPLICATION,** check appropriate box and supply the requisite information:
___ Continuation ____ Divisional _X_ Continuation-in-part (CIP)
of prior application No: 09/344,409

18. **Correspondence Address**
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Serial or Patent No.: To Be Assigned
Filed or Issued:
For: Exclusive Use display Surface Areas And Persistently Visible Display Of Contents Including Advertisement

Attorney's Docket No. 03646.P013X

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS
37 CFR 1.9 (f) and 1.27(b) – **INDEPENDENT INVENTOR**

As the below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled:

-- see above ---

described in

[**X**] the specification filed herewith.

[ ] application serial no. _____, filed _____.

[ ] patent no. _____, issued _____.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey or license any rights in the invention is listed below:

[**X**] No such person, concern, or organization.

[ ] Persons, concerns, or organizations listed below.*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME: _____
ADDRESS: _____
[ ] Individual [ ] Small Business Concern [ ] Non-Profit Organization

NAME: _____
ADDRESS: _____
[ ] Individual [ ] Small Business Concern [ ] Non-Profit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

SWAIN W. PORTER NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
Signature of Inventor	Signature of Inventor	Signature of Inventor
2/29/00 DATE	DATE	DATE

0954-7808-8080

Our Ref.: 003646.P013x

APPLICATION FOR UNITED STATES LETTERS PATENT

FOR

Exclusive Use Display Surface Areas And Persistently Visible Display Of Contents Including Advertisements

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Exclusive Use Display Surface Areas and Persistently Visible Display Of Contents Including Advertisements

Related Application

This application is a continuation-in-part application to U.S. Patent Application 09/344,409, filed on June 24, 1999, having the same title and same inventor as the present application.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to the field of computer systems. More specifically, the present invention relates to exclusive use display surface areas, and their applications to persistently visible display of contents, such as advertisements.

2. Background Information

With advances in microprocessor and other related technology, today's computers are equipped with processing capabilities that were once the exclusive domain of large mainframe computers. To exploit these capabilities, today's computers are often equipped with multi-tasking operating systems that allow multiple tasks of the same or different applications to be executed at the same time. These operating systems are also typically equipped with windowing managers to manage the concurrent display of the execution results of the various tasks or applications through windowing, within the constraint of the available display surface of a display device. That is, the execution results of the various tasks/applications are rendered in corresponding display windows (hereinafter, simply windows), and

these windows share the display surface. This employment of windows along with the use of iconic representations for various programs and "objects" is also often referred to as the desktop metaphor, with the shared display surface area being referred to as the desktop area.

Whether the contents rendered in the various windows are actually visible to a user depend on the relatively placement of the windows within the available display surface. Except for the top window (such as the "in focus" window or another window "rigged" to be "always on top") or windows that do not overlap with other windows (such as windows placed in a tile arrangement), contents of the underlying windows disposed in the overlapping portions are considered obstructed, and generally invisible, unless the top and other intermediate windows are considered "transparent". Contents disposed in the obstructed portions of these underlying windows become visible only when the window manager surfaces the window as the top window, typically responsive to a user request.

Many applications, such as Internet advertising, desire to have at least some of their rendered contents (in the case of Internet advertising, the advertisements themselves) persistently visible to the user. However, "rigging" the browser window to be "always on top" is not necessarily a viable option. Furthermore, in the case of Internet advertisement, even if "rigging" the browser window as "always on top" is a viable option, it still would not fully satisfy its persistent visibility desire. The reason is because most Internet advertisements are rendered in the form of banners, typically disposed at least at the top and at the bottom of a page. The banner advertisement placed at the bottom of a page is typically not visible when the page is first displayed, as the page is typically larger than the browser window. Similarly, the banner advertisement placed at the top of the page becomes invisible as the page is scrolled downward.

Thus, an improved approach to display management that better addresses the persistent visibility requirements of applications, in particular, the persistent visibility requirements of Internet advertising is desired.

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SUMMARY OF THE INVENTION

In a computer system having a display device with a display surface, a portion of the display surface is reserved for an exclusive use, allowing contents rendered in the reserve area to be persistently visible. In one embodiment, the reservation is accomplished through reducing the width and height of a shared portion of the display surface managed by a window manager, corresponding to a graphics resolution. In another embodiment, the reservation is accomplished by having the window manager works with a pixel resolution smaller than the operative pixel resolution of the display hardware. In one embodiment, the reservation is made only while the computer system is "on-line". In one embodiment, the exclusive use is to render advertisements in the reserved portion by an advertising rendering program. The advertisements are HTML pages received from an advertisement web server through the Internet. The HTML pages are rendered in the reserved portion through a direct draw component. The direct draw component is provided with the unreduced width and height as the width and height of the surface area to support direct drawing of graphical displays. A cursor control device driver also supports monitoring of movements of a cursor control device and of occurrences of cursor events. The cursor control device driver is likewise provided with the unreduced width and height as the width and height of the surface area to monitor for cursor movements and events. In other embodiments, multiple portions of the display surface are reserved for advertising and/or other exclusive uses. In yet other embodiments, full screen applications, including those that utilize page flipping are accommodated.

BRIEF DESCRIPTION OF DRAWINGS

The present invention will be described by way of exemplary embodiments, but not limitations, illustrated in the accompanying drawings in which like references denote similar elements, and in which:

Figure 1a-1f illustrate an overview of the present invention, in accordance with six embodiments;

Figure 2 illustrates an example computer system suitable for practicing the present invention;

Figure 3 illustrates the operating system of **Fig. 2** in further details, and its interaction with the various applications, in accordance with one embodiment;

Figures 4a-4c illustrate various operational flows of the EDA manager of **Fig. 3**, in accordance with one embodiment;

Figure 4d illustrates an alternate embodiment to the operation flow of **Fig. 4a**;

Figures 5-6 illustrate application of the present invention to advertisement rendering, in accordance with two embodiments; and

Figures 7-8 illustrate application of the present invention to Internet advertising in further details, in accordance with one embodiment.

DETAILED DESCRIPTION OF THE INVENTION

In the following description, various aspects of the present invention will be described. However, it will be apparent to those skilled in the art that the present invention may be practiced with only some or all aspects of the present invention. For purposes of explanation, specific numbers, materials and configurations are set forth in order to provide a thorough understanding of the present invention. However, it will also be apparent to one skilled in the art that the present invention may be practiced without the specific details. In other instances, well known features are omitted or simplified in order not to obscure the present invention.

Parts of the description will be presented using terms such as display surfaces, windows, device drivers, and so forth, commonly employed by those skilled in the art to convey the substance of their work to others skilled in the art. Parts of the description will be presented in terms of operations performed by a computer system, using terms such as rendering, determining, reducing, transmitting, and so forth. As well understood by those skilled in the art, these quantities and operations take the form of electrical, magnetic, or optical signals capable of being stored, transferred, combined, and otherwise manipulated through mechanical and electrical components of a digital system; and the term digital system include general purpose as well as special purpose data processing machines, systems, and the like, that are standalone, adjunct or embedded.

Various operations will be described as multiple discrete steps performed in turn in a manner that is most helpful in understanding the present invention, however, the order of description should not be construed as to imply that these operations are necessarily order dependent, in particular, the order the steps are presented.

Furthermore, the phrase "in one embodiment" will be used repeatedly, however the phrase does not necessarily refer to the same embodiment, although it may.

Referring now to **Figures 1a-1f**, wherein six block diagrams illustrating an overview of the present invention in accordance with three embodiments are shown. As illustrated, in accordance with the present invention, displace surface **102** of display device **100** (of a computer system) are divided into display areas **104** and **106a-106aa**. Display area **104** is referred to as the shared display area (SDA), where any number of applications **108** (executing on the computer system or remotely, and of a display area sharing type) may render contents in their corresponding windows (disposed inside SDA **104**). Display areas **106a-106aa** are referred to as exclusive-use display areas (EDA), where only assigned applications **110** (executing on the computer system or remotely, and of an exclusive use type, in terms of display area) may correspondingly render contents into these areas. For **Fig. 1a**, one EDA **106a** disposed along the bottom edge of display surface **102** is set aside or reserved. Whereas, in **Figs 1b-1c**, three EDAs **106b-106d** and **106e-106g** disposed along the left and top edges and along the right and bottom edges of displace surface **102** respectively, are set aside or reserved. In **Figs 1d-1e**, six EDAs **106h-106m** and **106n-106s** disposed in two rows along the left and top edges and along the right and bottom edges of displace surface **102** respectively, are set aside or reserved. Finally, in **Figs 1f**, eight EDAs **106t-106aa** disposed along the perimeter of displace surface **102** are set aside or reserved. As a result, contents rendered into EDAs **106a-106aa** by applications **110** are persistently visible to an end-user, without resorting to prior art "rigging" techniques, such as "always on top". As will be described in more detail below, by selectively associating with an application **110**, an application **108** may selectively render a portion of its output

display in this persistently visible manner, thereby enabling applications (such as advertisement rendering), to overcome the prior art disadvantage of losing visibility to some of the rendered contents (such as banner advertisements), when the rendered contents (such as a displayed page), is scrolled up and down within a display window (such as a browser window).

These and other aspects of the present invention will be described more fully below. However, before doing do, it should be noted that while six embodiments of partitioning or setting aside or reserving exclusive-use display areas **106*** were shown, from the descriptions to follow, those skilled in the art will appreciate that depending on how the coordinate system or pixel configuration is implemented by the operating system of the computer system, some embodiments are more suitable for one operating system, while other embodiments may be more suitable for another operating system. Of course, other variations of partitioning or setting aside or reserving exclusive-use display areas may also be practiced. It should also be noted that each assigned application **110** may elect to employ multiple windows in rendering contents in its assigned EDA **106***. However, for ease of understanding, the remaining description will substantially be confined to the scenario where an un-windowed or single window approach is employed in each of the assigned EDA **106***. (The symbol * after reference number **106** stands for a "wildcard", which in this case may be any one of the letters "a" through "aa".)

Referring now to **Figure 2**, wherein an example computer system suitable for practicing the present invention is shown. As shown, example computer system **200** includes processor **202**, ROM **203**, and system memory **204** coupled to each other via "bus" **206**. Coupled also to "bus" **206** are non-volatile mass storage **208**, display device **210**, cursor control device **212** and communication interface

214. ROM **203** includes a basic input/output system (BIOS) **205**. During operation, memory **204** includes working copies of operating system **222**, applications **224** that use the shared display area (see **Figs. 1a-1f**) of the display surface of display device **210**, and applications **226** that use correspondingly assigned exclusive-use display areas (see **Figs. 1a-1f**) of the display surface of display device **210**. For some embodiments, memory **204** further includes working copies of applications **228** that use the entire display area (also referred to as "full screen" applications). Operating system **222**, applications **226**, and in some embodiments, applications **224** and **228** are incorporated with the teachings of the present invention. Examples of SDA applications **224** are conventional word processing applications, spread sheet applications, and the like. Examples of EDA applications **226** include advertisements, as alluded to earlier, messaging applications, and the like. Examples of "full screen" applications **228** include multi-media games and the like.

Except for the teachings of the present invention incorporated, each of these elements is intended to represent a wide range of these devices known in the art, and perform its conventional functions. For example, processor **202** may be a processor of the Pentium® family available from Intel Corporation of Santa Clara, CA, or a processor of the PowerPC® family available from IBM of Armonk, NY. Processor **202** performs its conventional function of executing programming instructions of operating system **222** and applications **224-228**, including those implementing the teachings of the present invention. ROM **203** may be EEPROM, Flash and the like, and memory **204** may be SDRAM, DRAM and the like, from semiconductor manufacturers such as Micron Technology of Boise, Idaho. Bus **206** may be a single bus or a multiple bus implementation. In other words, bus **206** may include multiple buses of identical or different kinds properly bridged, such as Local Bus, VESA, ISA, EISA, PCI and the like.

Mass storage **208** may be disk drives or CDROMs from manufacturers such as Seagate Technology of Santa Cruz of CA, and the like. Typically, mass storage **208** includes the permanent copy of operating system **222** and applications **224-228**. The permanent copy may be installed in the factory, or in the field. For field installation, the permanent copy may be distributed using article of manufactures with recordable medium such as diskettes, CDROM, DVD and the like, or downloaded from a distribution server through a data network (such as the Internet). The distribution server may be a server of the OEM, i.e. the software developer, such as Microsoft of Redmond, WA, if an operating system of the Window® family is used, or a server of a publisher, such as Red Hat of Durham, NC, if Linux is used instead.

Display device **210** may be monitors of any types from manufacturers such as Viewsonic of City, State. Cursor control **212** may be a mouse, a track ball and the like, from manufacturers such as Logictech of Milpitas, CA. Communication interface **214** may be a modem interface, an ISDN adapter, a DSL interface, an Ethernet or Token ring network interface and the like, from manufacturers such as 3COM of San Jose, CA.

As those skilled in the art will also appreciate, from the description the follow, the present invention may also be practiced without some of the enumerated elements, e.g. mass storage **208**, or with additional elements, such as graphics accelerators, audio and video add-on cards, and so forth. Furthermore, while for ease of understanding, the term "applications **226**" is used to refer to "applications" assigned to use the exclusive-use display areas, in alternate embodiments, through appropriate use of an "emulation interface", one or more of applications **226** may be another operating system instead.

Referring now the **Figure 3**, wherein a block diagram illustrating enhanced operating system **222** and its interactions with applications **224-228** is shown. As illustrated, operating system **222** includes conventional elements such as window manager **302**, graphics manager **304**, display device driver **306**, and cursor control device driver **308**. Each of these elements performs its conventional functions known in the art. That is, window manager **302** performs the conventional function of managing the current display of the various display windows of applications **224** in the SDA (see **Figs. 1a-1f**). Graphics manager **304** performs the conventional function of rendering graphics objects for an application. Graphics manager **304** includes in particular, the capability of allowing an application to make direct draw onto the display surface of a display device. For example, for the Windows® operating systems, graphics manager **304** is intended to represent the Graphics Device Interface (GDI) and DirectX combined. (The two components are expected to be consolidated into a single component in GDI2K and beyond.) Display driver **306** performs the conventional function of controlling the display device, whereas cursor control device driver **308** performs the conventional function of monitoring movements of a cursor control device and cursor events (such as clicking or double clicking of a control button).

As illustrated, in accordance with the present invention, operating system **222** is also advantageously provided with exclusive-use display area manager **310**. EDA manager **310** is employed to "coordinate" with window manager **302** to set up the shared and exclusive areas. Furthermore, EDA manager **310** is also employed to enable applications **226** to be able to correspondingly render contents into their assigned EDAs, and to respond to cursor device movements and events detected within their assigned EDAs. For the illustrated embodiment, SDA applications **224** render contents into their windows using graphics manager **304** through window

manager **302**, wherea EDA and "full screen" applications **226-228** render contents into the EDAs and the entire display screen respectively using the direct draw functions of graphics manager **304**. These and other aspects will be described more fully below with references to **Figs. 4a-4c**.

Figure 4a illustrates the operational flow of EDA manager **310** for "coordinating" with window manager **302** in setting up the shared and exclusive-use display areas, in accordance with one embodiment. As shown, for the illustrated embodiment, EDA manager **310** intercepts a call from window manager **302** to display device driver **306** to obtain the size of the display surface for the display device under the control of display device driver **306** for a particular graphics resolution. The interception or redirection to EDA manager **310** is accomplished in an operating system dependent manner. In one embodiment, where the operating system is of the Windows® family, the interception or redirection of the call is by modifying the registry and the system.ini file. For this embodiment, the call includes the graphics resolution, expressed in terms of a pixel resolution, e.g. 800x600 pixels.

Upon interception, at **402**, EDA manager **310** forwards the call to display device driver **306**. At **404**, the display device driver **306** returns the size of the display surface of the display device under the control of display device driver **306** for the particular graphics resolution. In one embodiment, the size is expressed in terms of the width and height of the display surface. In one embodiment, the width and height are implicitly expressed in terms of maximum x and y coordinates. In one embodiment, where the operating system is of the Windows® family, the original of the x-y coordinate is by-definition the top left corner of the display surface.

For the illustrated embodiment, upon receipt of the size of display surface expressed in terms of width and height, at **406**, EDA manager **310** reduces the width and height accordingly to set aside or reserve the EDA(s). In one embodiment, the number of EDA(s) to be created and the applications to be assigned to the various EDAs are specified through a configuration file, e.g. for an operating system of the Windows® family, through sections in the win.ini and system.ini files. Depending on the coordinate system of the operating system, multiple EDAs can be created with a single or successive operations of reducing the width and the height. For example, for the embodiment where the size is expressed in terms of maximum x (x_{max}) and maximum y (y_{max}) referencing an origin disposed at the top left corner of the display surface, the three EDAs of **Fig. 1c** may be created by reducing x_{max} and y_{max} to x'_{max} and y'_{max} where x'_{max} and y'_{max} are smaller than x_{max} and y_{max} respectively. EDAs **106f** and **106g** are the areas disposed along the bottom and the right edge of the display surface respectively, less the intersected area, which is treated as EDA **106e**. Similarly, the six EDAs of **Fig. 1e** may be created by successively reducing x_{max} and y_{max} to x'_{max} and y'_{max}, and x''_{max} and y''_{max},, where x'_{max} and y'_{max} are smaller than x_{max} and y_{max},, and x''_{max} and y''_{max} are smaller than x'_{max} and y'_{max}, respectively. EDAs **106n-106s** are the two rows of areas disposed along the bottom and the right edge of the display surface respectively. The successive reduction may even be performed through recursive invocation of a reduction function. In alternate embodiments, the allocation of the EDAs to applications **110** may be made dynamically instead, employing a resource allocation manager.

Upon reducing the size of the display surface, at **408**, EDA manager **310** returns the reduced size to window manager **302**, thereby "coordinating" the locations of the shared and exclusive-use display areas with window manager **302**.

In alternate embodiments, other expression of sizes as well as other coordinate systems may be employed. The manner in which the size is reduced, and the manner in which shared and exclusive-use areas are designated may simply be adjusted accordingly to the alternate approaches.

For the illustrated embodiment, it is assumed that upon receipt of the reduced size, window manager **302** also sets up graphics manager **304** and cursor control device driver **308** to operate with the same display surface information, i.e. the reduced size. Accordingly, at **410**, EDA manager **310** overrides this information, restoring graphics manager **304** and cursor control device driver **308** to operate with the unreduced size, thereby allowing applications **226** to render contents into the EDAs through direct draw, and to be notified of detected cursor movements and events in the EDAs. Towards the later objective, at **412**, EDA manager **310** also modifies the set up of cursor control device driver **308** such that event notifications of cursor movements and events are provided to EDA manager **310** instead of window manager **302**, for EDA manager **310** to filter out the detected cursor movements and events in the EDAs before allowing the residual detected cursor movements and events (within the shared display area) to be passed on to window manager **310**.

In one embodiment, window manager **302** attempts to establish the size of display surface at each system start-up/reset. Accordingly, the operations illustrated in **Fig. 4a** are performed at each system start-up/reset.

In an alternate embodiment, operations **406-410** are not performed at each system start-up/reset. Instead they are performed only when the computer system is "on-line", e.g. connected to the Internet. That is, upon receiving the size of the display surface from display device driver **306** at system start/reset, EDA manager **310** forwards the information to window manager **302** without the earlier described

reduction and conformance, operations **406-410**. EDA manager **310** instead proceeds to monitor for the computer system going "on-line" (not shown in **Fig. 4a**). Only upon detection of such event, EDA manager **310** performs operations **406-410**. (The monitoring/detection may be accomplished in any one of a number of operating system dependent manners known in the art.) Furthermore, upon performing operation **410**, EDA manager **310** monitors for the computer system going "off-line" (also not shown in **Fig. 4a**). Upon detection of the computer system going "off-line", EDA manager **310** notifies window manager **302** to switch back to the unreduced screen size. Accordingly, the reservation, or the existence of the exclusive-use display areas are available only when the computer system is "on-line".

In yet another embodiment, operations **406-410** are performed only when a CD or a DVD is being used. Similar to the earlier described embodiment, upon receiving the size of the display surface from display device driver **306** at system start/reset, EDA manager **310** forwards the information to window manager **302** without the earlier described reduction and conformance, operations **406-410**. EDA manager **310** instead proceeds to monitor for the presence and usage of a CD/DVD (not shown in **Fig. 4a**). Only upon detection of such event, EDA manager **310** performs operations **406-410**. (The monitoring/detection may be accomplished in any one of a number of operating system dependent manners known in the art.) Furthermore, upon performing operation **410**, EDA manager **310** monitors for the removal of the CD/DVD (also not shown in **Fig. 4a**). Upon detection of the removal of the CD/DVD, EDA manager **310** notifies window manager **302** to switch back to the unreduced screen size. Accordingly, the reservation, or the existence of the exclusive-use display areas are available only when a CD/DVD is being used.

As can be seen from these embodiments, in general, the exclusvive use areas of the present invention may be facilitated upon occurrence of any one of a number of events, and the facilitation ceases upon occurrence of any one of a number of other events, including in particular, "complements" of the earlier events. In one embodiments, the computer system may be programmatically configured with these events.

Note that starting applications **110** assigned with the EDAs is a separate issue. These applications may be started as part of an auto start process at system start-up or they may be started on an as needed basis by a task manager or by other applications.

Figure 4b illustrates the operational flow of EDA manager **310** for filtering cursor movement/event notifications, in accordance with one embodiment. Upon receipt of a cursor movement/event notification, at **412**, EDA manager **310** first determines whether the movement/event was detected in the SDA or one of the EDAs. If the movement/event was detected in the SDA, at **414**, EDA manager **310** forwards the notification to window manager **302**. From there, operations proceed as in the prior art. On the other hand, if the movement/event was detected in one of the EDAs, at **414**, EDA manager **310** determines within which EDA, the movement or event occurred. At **416**, EDA manager **310** forwards the notification to the appropriate application **110** accordingly. The manner in which the notification is handled is application dependent.

Figure 4c illustrates the operational flow of EDA manager **310** for accommodating "full screen" applications **226**, in accordance with one embodiment. At **422**, EDA manager **310** monitors for calls by any one of "full screen" applications **228** to the direct draw functions of graphics manager **304** to enter a "full screen" mode of operation. Upon detection of one of such calls, EDA manager **310**, at **424**,

notifies EDA applications **226** to temporarily refrain from drawing to the EDAs. EDA manager **310** then monitors for a call by the current full screen occupying application **226** to the direct draw functions of graphics manager **304** to restore the normal "non-full screen" mode of operation, **426**. Upon detection of such a call, EDA manager **310**, at **428**, notifies EDA applications **226** that they may resume using the EDAs again. Thus, 'full screen" applications are accommodated.

In an alternate embodiment where "full screen" applications **228** employ the feature referred to as "page flipping", instead of accommodating the "full screen" applications **228** by temporarily removing the EDAs, the current full screen occupying application **228** may actually leave a perimeter of pixels for use as EDAs (e.g. like **Fig. 1c**), and notifies EDA manager **310** of the size. In response, instead of instructing EDA applications **226** to temporarily refrain from drawing to the EDAs, EDA manager **310** will intercept the "page flip" call by the current full screen occupying application, and coordinate having EDA applications **226** write to the "unused" locations of the "back" buffer (unused by the full screen occupying applications), using the direct draw functions of graphics manager **304**, before forwarding the "page flip" call onward and have the "page flip" operation performed (that is, moving the content of the "back" buffer to the "front" buffer). Accordingly, the EDAs of the present invention as well as the "full screen" applications may both be accommodated.

Figure 4d illustrates the operational flow of EDA manager **310** for "coordinating" with window manager **302** in setting up the shared and EDAs, in accordance with another embodiment (i.e. an alternate embodiment to **Fig. 4a**). In this embodiment, it is assumed that SDA applications **224** include an application that monitors for the computer system going "on-line" and "off-line". Upon detecting

the computer system going "on-line", the application causes a number of EDA applications **226** to be launched, and upon detecting the computer system going "off-line", the application causes the launched EDA applications **226** to be terminated. In one implementation, the SDA application is an enhanced browser with a "plug in", such as an ActiveX control to perform the monitoring. Furthermore, it is also assumed that the launched EDA applications **226** include a "primary" application that initiates the reservation or creation of the EDAs.

As illustrated, upon invocation, "primary" EDA application **226** first notifies EDA manager **310** that it is going to call window manager **302** to request window manager **302** to change to a "smaller" display mode (in terms of pixels), **432**. At **434**, "primary" EDA application **226** makes the actual call to window manager **302** to request the "smaller" display mode. In response, window manager **302** internally notes the change (and hencefore manages the display windows within the SDA accordingly), and calls display device driver **306** to reconfigure the display hardware (by way of EDA manager **310**), **436**. EDA manager **310**, having been alerted by "primary" EDA application **226** ignores the request without forwarding it to display device driver **306**, effectively aborting the call, **438**. As a result, the display hardware is still configured for the "larger" display mode (in terms of pixels), while window manager **302** manages display windows of SDA applications **224** in accordance with a "smaller" display mode. Accordingly, the desired EDAs are effectively reserved or created.

Similar to **Fig. 4a**, it is also assumed that upon "calling" display device driver **306** to reconfigure the display hardware to the "smaller" display mode, window manager **302** will set up graphics manager **304** and cursor control device driver **308** to work with the "smaller" display mode. At **440**, EDA manager **310** overrides these set up, and restoring graphics manager **304** and cursor control device driver **308** to

operate with the "larger" display mode, thereby allowing EDA applications **226** to render contents into the EDAs through the direct draw function of graphics manager **304**, and to be notified of detected cursor movements and events in the EDAs.

As part of the termination process, "primary" EDA application **226** also first notifies EDA manager **310** that it is going to call window manager **302** to request window manager **302** to change to a "larger" display mode (in terms of pixels), **442**. At **444**, "primary" EDA application **226** makes the actual call to window manager **302** to request the "larger" display mode. In response, window manager **302** internally notes the change (and henceforth manages the display windows of the SDA accordingly), and calls display device driver **306** to reconfigure the display hardware (by way of EDA manager **310**), **446**. EDA manager **310**, having been alerted by "primary" EDA application **226** again ignores the request without forwarding it to display device driver **306**, again effectively aborting the call, **448**. As a result, window manager **302** returns to managing display windows of SDA applications **224** in accordance with the "larger" display mode, consistent with the display hardware. At **450**, EDA manager **310** resets graphics manager **304** and cursor control device driver **308**, as operation **440**. Accordingly, the EDAs are effectively unreserved or eliminated.

Those skilled in the art will appreciate that since the EDAs are reserved and unreserved without requiring display device driver **306** actually reconfiguring the display hardware, a user will see the contraction of the shared display area (and formation of the EDAs) as well as the expansion of the shared display area (and elimination of the EDAs) without seeing the blanking of the display device (caused by the reconfiguration of the display hardware), a very desirable usability feature.

Similar to the embodiment of **Fig. 4a**, detection of cursor movements and events within the EDAs may be facilitated as described earlier with reference to **Fig.**

4b, and "full screen" applications **228** may be accommodated as earlier described referencing **Fig. 4c**.

Referring now to **Figures 5-6**, wherein an example application of the present invention to rendering advertisement, in accordance with two embodiments are shown. As illustrated, both in **Figs. 5-6**, EDA manager **310** assigns one of the EDAs, more specifically, EDA **506a** or **606a** disposed at the lower right corner of display surface **502**, to display its identification signifying its presence and operation in the system, along with status and other control information. Additionally, for the illustrated embodiment, at least one of the applications **110** assigned with corresponding EDAs **506b** and **506c** or **606b** and **606c** is an advertisement rendering program for rendering advertisements (e.g. advertisements received from a remote server (such as a web server) through a data network (such as the Internet)).

For **Fig. 5**, it is assumed that the advertisements are constituted with Hypertext Mark-Up Language (HTML) pages, and each advertisement rendering program is an instance of a browser program, such as the Internet Explorer available from Microsoft or Navigator available from Netscape, recently acquired by America On-Line of Dulles, Virginia. By virtue of the browser's exclusive use of its assigned display area **506b** or **506c**, the advertisement rendered are persistently visible, independent of changes in the shared display area **504**.

For **Fig. 6**, it is also assumed that the advertisements are also constituted with Hypertext Mark-Up Language (HTML) pages, however the advertisement rendering program assigned the EDA is merely a program that renders iconic representations for advertisements in the assigned EDA, e.g. trademarks or service marks of the advertisers. The program, in response to a user selection of a corresponding displayed iconic representation of an advertisement, launches an

instance of a browser program to render the advertisement in a conventional browser window **608** disposed in SDA **604**. Although for this embodiment, the advertisements themselves are not persistently visible, but their iconic representations, by virtue of the program's exclusive use of the display areas, are persistently visible. Although not proportionally illustrated, EDAs **606b** and **606c** may be substantially smaller than EDAs **506b** and **506c**, thereby offering a compromised tradeoff of having a larger shared display area **604**, and yet maintaining a small amount of persistently visible display areas **606b-606c**.

Referring now to **Figures 7-8**, wherein two block diagrams illustrating the example application of the present invention to advertising, more specifically, to Internet advertising, in further details, are shown. As illustrated, **Fig. 7** is a network view of an improved approach to Internet advertising including end-user systems **702** incorporated with the teachings of the present invention set forth above, and web-based advertisement servers **710** equipped to exploit the presence of end-user systems **702** with persistent visibility provided through the present invention. End user systems **702** are coupled to the Internet **704**, some through the conventional PSTN **706**, while others through their private/public LAN **708**.

Figure 8 illustrates the operational flow of the Internet advertising method of the present invention, in accordance with one embodiment. As shown, at **802**, server **710** transmits a web page to one of the end-user systems **702** in response to a "request" for the web page from the particular end-user system **702**. As in the prior art, the request and response may be accomplished through e.g. an http connection that includes an URL denoting the web page or the particular server **710**. In accordance with the present invention, the web page includes a script, e.g. a Javascript, that requests EDA manager **310** to provide an URL identifying one or

more advertisements to an advertisement rendering program assigned to a designated exclusive-use display area, e.g. the EDA disposed along the bottom edge of the display surface. (The advertisement rendering program may be an embodiment of the **Fig. 5a** type or an embodiment of the **Fig. 5b** type, or embodiment of other like type.) Thus, upon receipt, at **804**, the embedded script makes the request accordingly.

At **806**, EDA manager **310** provides the URL to the advertisement rendering program assigned the designated EDA accordingly. In response, at **808**, the advertisement rendering program opens another http connection to the specified resource location to retrieve the specified advertisements. Upon receipt of the advertisements, the advertisement rendering program renders the advertisements accordingly, as described above.

Thus, a method and an apparatus for creating exclusive-use display areas, and using them for persistently visible display of contents, such as advertisement, have been described.

While the present invention has been described in terms of the above illustrated embodiments, those skilled in the art will recognize that the invention is not limited to the embodiments described. The present invention can be practiced with modification and alteration within the spirit and scope of the appended claims. The description is thus to be regarded as illustrative instead of restrictive on the present invention.

CLAIMS

What is claimed is:

1. In a computer system having a display device including a display surface, a method of operation comprising:

reserving a first portion of the display surface for exclusive use by a first program; and

rendering contents in said reserved first portion of the display surface, by said first program, excluding all other programs from using said reserved first portion of display surface.

2. The method of claim 1, wherein said reserving comprises requesting a window manager to switch to a display mode having a smaller pixel configuration.

3. The method of claim 2, wherein said reserving further comprises aborting a responsive request by the window manager to a display device driver to configure a display hardware to said smaller pixel configuration.

4. The method of claim 2, wherein said reserving further comprises pre-alerting an exclusive-use display area manager of said display mode switch request to said window manager.

5. The method of claim 1, wherein

the method further comprises determining if a first event has occurred; and

said reserving is performed only if the first event is determined to have occurred.

6. The method of claim 5, wherein the method further comprises

determining if a second event has occurred; and

unreserving said first portion of the display surface for exclusive use by said first program if the second event is determined to have occurred.

7. The method of claim 6, wherein said unreserving comprises requesting a window manager to switch to a display mode having a larger pixel configuration.

8. The method of claim 7, wherein said unreserving further comprises aborting a responsive request by the window manager to a display device driver to configure a display hardware to said larger pixel configuration.

9. The method of claim 7, wherein said reserving further comprises pre-alerting an exclusive-use display area manager of said display mode switch request to said window manager.

10. The method of claim 1, wherein the method further comprises

monitoring for a request by an application to change a display mode to a full screen mode; and

notifying said first program to temporarily stop rendering contents in said reserved first portion of the display surface.

11. The method of claim 10, wherein the method further comprises

monitoring for a request by an application to change a display mode from a full screen mode to a normal mode; and

notifying said first program to resume rendering contents in said reserved first portion of the display surface.

12. The method of claim 1, wherein the method further comprises

monitoring for a request by an application to change a display mode to a full screen mode; and

upon detecting such as request, intercepting all page flipping calls by said application, and forwarding each of said page flipping calls onward only after said first program has updated a back buffer.

13. The method of claim 12, wherein the method further comprises interacting with said full screen mode requesting application to maintain said reserved first portion of the display surface

14. In a computer system having a display device including a display surface, a method of operation comprising:

pre-alerting an exclusive-use display area manager of a display mode switch request to a window manager;

submitting said display mode switch request to said window manager; and

aborting a responsive request by the window manager to a display device driver to configure a display hardware in accordance with said display mode switch request.

15. The method of claim 14, wherein said display mode switch request is a request to switch to a selected one of a smaller and a larger pixel configuration.

16. In a computer system having a display device including a display surface, a method of operation comprising:

determining if a first event has occurred;

operating the display device with the display surface having one or more exclusive use display areas whose contents are persistently visible if the first event is determined to have occurred;

determining if a second event has occurred; and

operating the display device with the display surface having no exclusive use display area whose contents are persistently visible if the second event is determined to have occurred.

17. The method of claim 16, wherein said operating of the display device with the display surface having one or more exclusive use display areas whose contents are persistently visible further comprises accommodating an application that operates in a full screen mode.

18. The method of claim 17, wherein said accommodating comprises temporarily suspending rendering contents into said exclusive use display areas.

19. The method of claim 17, wherein said accommodating comprises interacting with said application that operates in a full screen mode to at least partially maintain said exclusive use display areas.

20. In a computer system having a display device including a display surface, a method of operation comprising:

intercepting a page flipping call by an application that operates in a full screen mode;

updating locations of a back buffer unused by said application with contents to be persistently visible; and

forwarding said page flipping call onward after said updating.

21. An article of manufacture comprising:

a recordable medium having stored thereon a plurality of programming instructions to be executed by a processor, wherein when executed, perform the operations set forth in claim 1.

22. An article of manufacture comprising:

a recordable medium having stored thereon a plurality of programming instructions to be executed by a processor, wherein when executed, perform the operations set forth in claim 14.

23. An article of manufacture comprising:

a recordable medium having stored thereon a plurality of programming instructions to be executed by a processor, wherein when executed, perform the operations set forth in claim 16.

24. An article of manufacture comprising:

a recordable medium having stored thereon a plurality of programming instructions to be executed by a processor, wherein when executed, perform the operations set forth in claim 20.

25. An apparatus comprising:

a display device having a display surface;

a storage medium having stored therein a plurality of programming instructions designed to implement a display device driver to render displays on said display surface of said display device, and an exclusive use manager to cooperate with said display device driver to facilitate exclusive use of at least a first sub-portion of said display surface for rendering persistently visible contents; and

a processor coupled to the display device and the storage medium to execute the programming instructions.

26. The apparatus of claim 25, wherein the exclusive use manager is equipped to receive an alert of a display mode change request from a window manager to said display device driver, and in response, upon intercepting said display mode change request, aborting said display mode change request.

27. The apparatus of claim 25, wherein the exclusive use manager is equipped to monitor for a display mode change request to enter a full screen mode of operation from an application, and in response, notifying applications associated with said exclusive use display areas to temporarily suspend rendering contents into said exclusive use display areas.

28. The apparatus of claim 25, wherein the exclusive use manager is equipped to monitor for a display mode change request to enter a full screen mode of operation from an application, and interact with said application to at least partially maintain said exclusive use display areas.

29. The apparatus of claim 28, wherein the exclusive use manager is further equipped to intercept page flipping calls by said application, and facilitating rendering of contents into said exclusive use display areas by applications associated with the exclusive use display areas prior to forwarding the intercepted page flipping calls.

30. An operating system comprising:

a display device driver to render displays on a display surface of a display device; and

an exclusive use manager to cooperate with said display device driver to facilitate exclusive use of at least a first sub-portion of said display surface for rendering persistently visible contents.

31. The operating system of claim 30, wherein the exclusive use manager is equipped to receive an alert of a display mode change request from a window manager to said display device driver, and in response, upon intercepting said display mode change request, aborting said display mode change request.

32. The operating system of claim 30, wherein the exclusive use manager is equipped to monitor for a display mode change request to enter a full screen mode of operation from an application, and in response, notifying applications associated with said exclusive use display areas to temporarily suspend rendering contents into said exclusive use display areas.

33. The operating system of claim 30, wherein the exclusive use manager is equipped to monitor for a display mode change request to enter a full screen mode

of operation from an application, and interact with said application to at least partially maintain said exclusive use display areas.

34. The operating system of claim 30, wherein the exclusive use manager is further equipped to intercept page flipping calls by said application, and facilitating rendering of contents into said exclusive use display areas by applications associated with the exclusive use display areas prior to forwarding the intercepted page flipping calls.

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ABSTRACT OF THE DISCLOSURE

In a computer system having a display device with a display surface, a portion of the display surface is reserved for an exclusive use by a program, to allow contents rendered by the program to be persistently visible. In one embodiment, the reservation is accomplished through reducing the width and height of a shared portion of the display surface managed by a window manager, corresponding to a graphics resolution. In another embodiment, the reservation is accomplished by having the window manager work with a pixel resolution smaller than the operative pixel resolution of the display device driver. In one embodiment, the reservation is made only while the computer system is "on-line". In one embodiment, the exclusive use is to render advertisements in the reserved portion by an advertising rendering program. The advertisements are HTML pages received from an advertisement web server through the Internet. The HTML pages are rendered in the reserved portion through a direct draw component. The direct draw component is provided with the unreduced width and height as the width and height of the surface area to support direct drawing of displays. A cursor control device driver also supports monitoring of movements of a cursor control device and of occurrences of cursor events. The cursor control device driver is likewise provided with the unreduced width and height as the width and height of the surface area to monitor for cursor movements and events. In other embodiments, multiple portions of the display surface are reserved for advertising and/or other exclusive uses. In yet other embodiments, full screen applications, including those that utilize page flipping are accommodated.

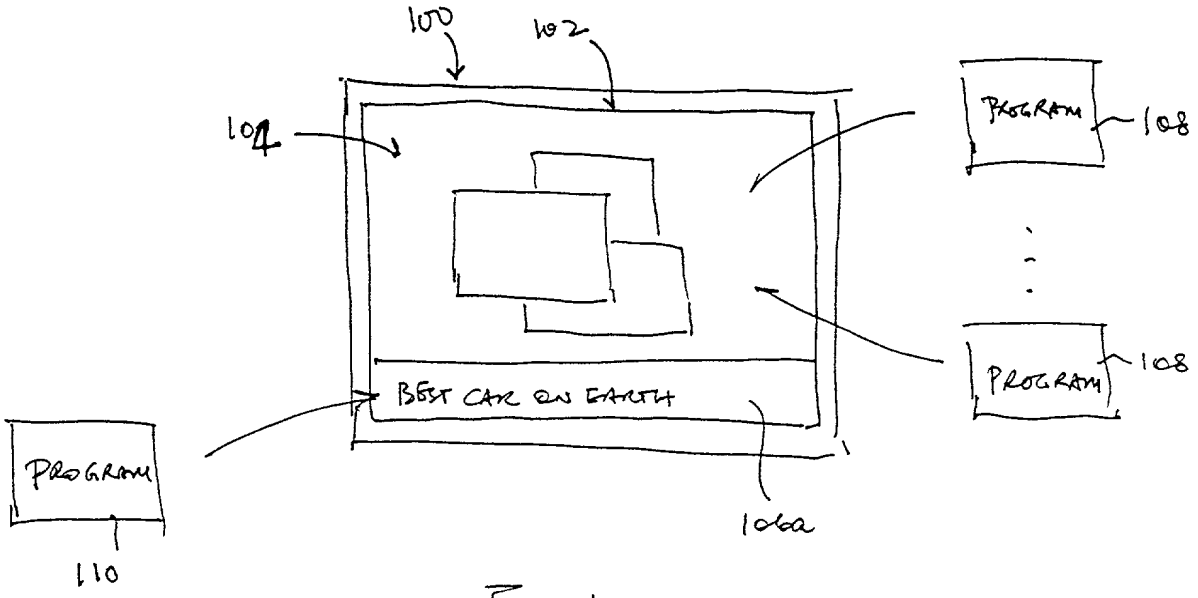

FIG. 1a

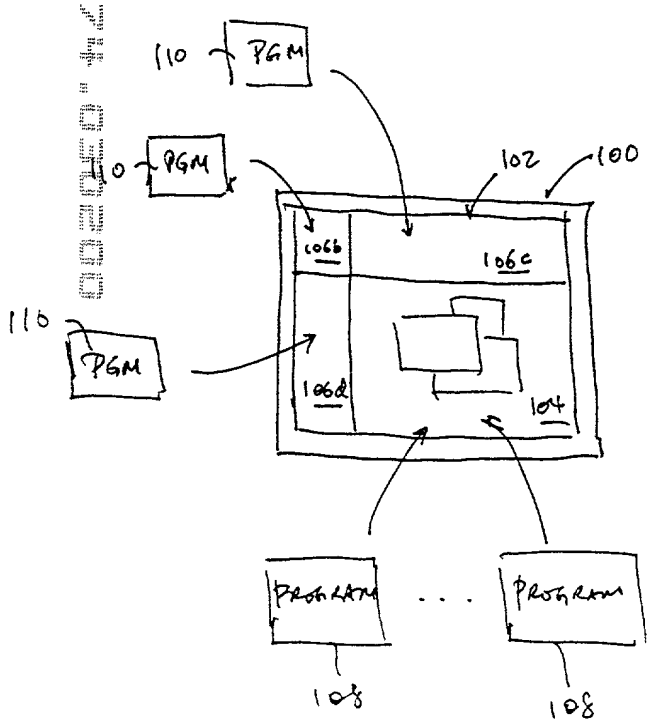

FIG. 1b

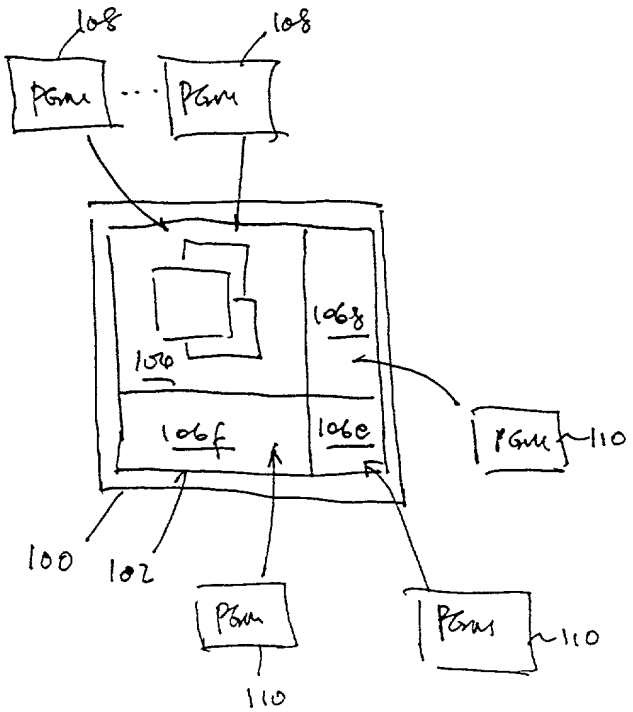

FIG. 1c

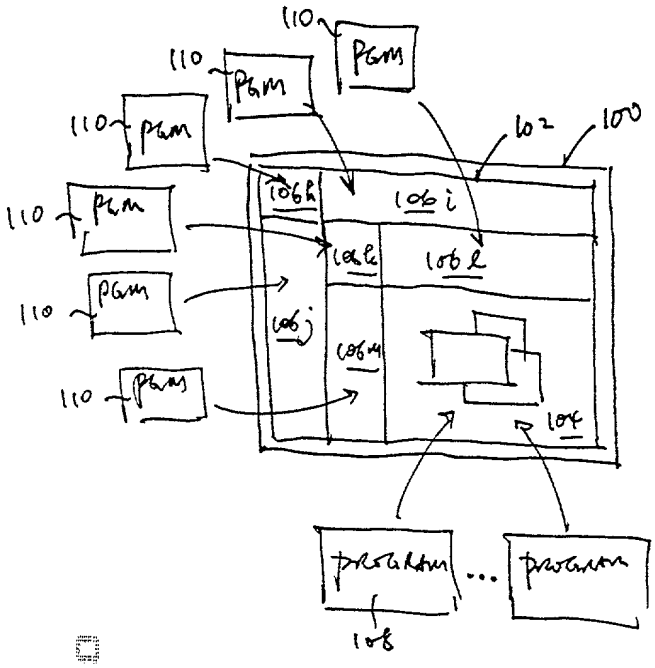

Fig 1d

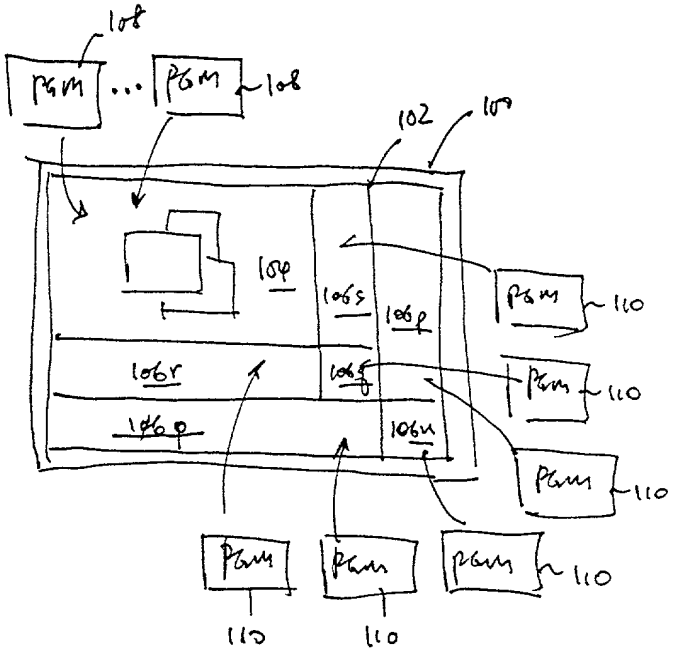

Fig 1e

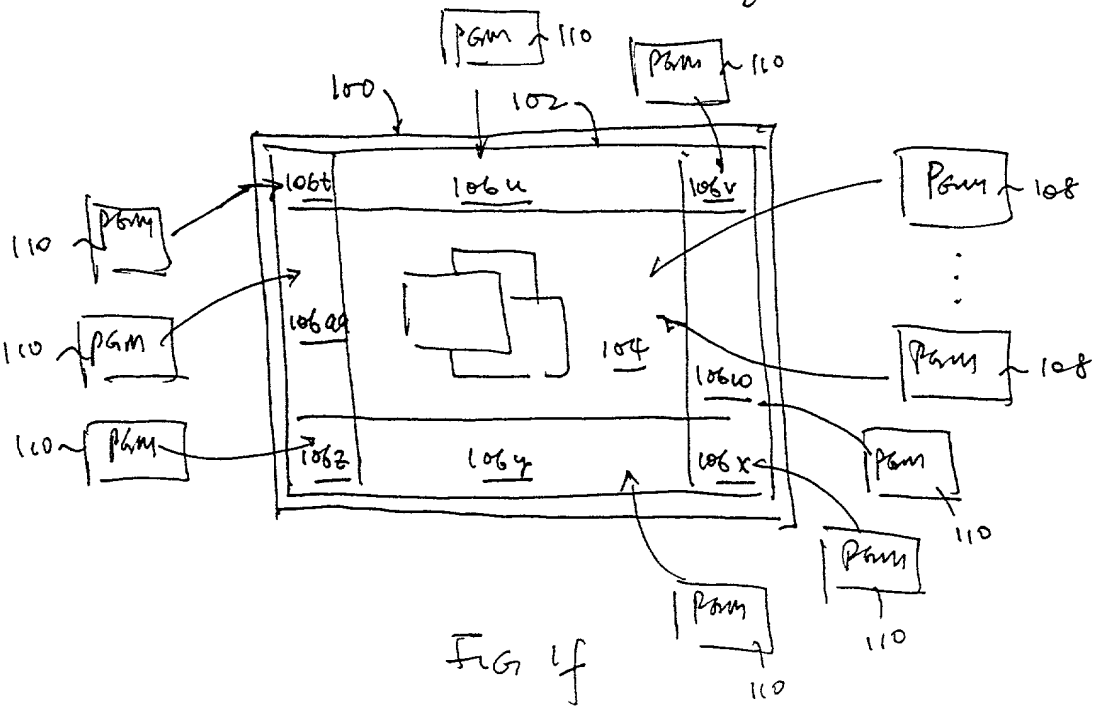

Fig 1f

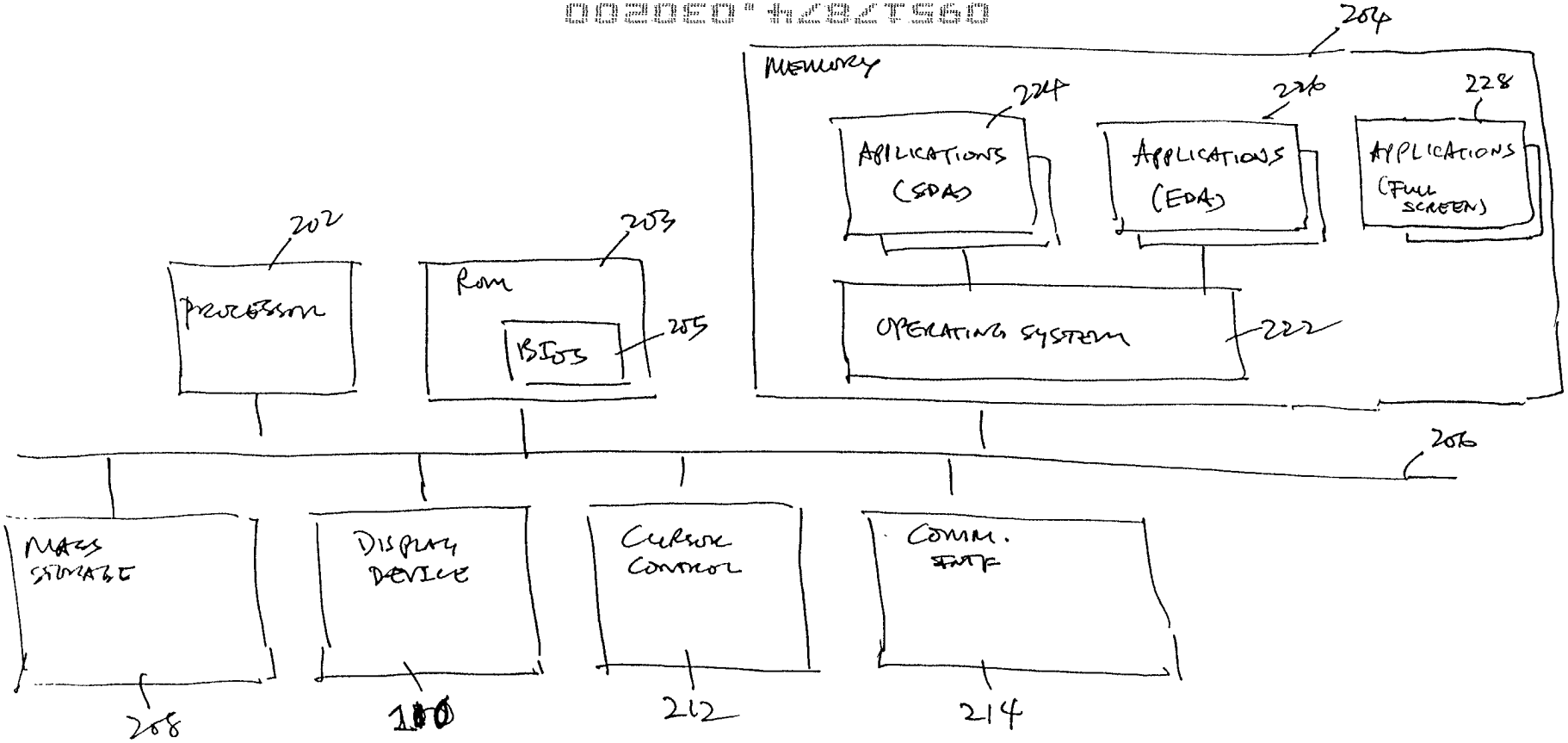
MEMORY
204
APPLICATIONS (SDA)
224
APPLICATIONS (EDA)
226
APPLICATIONS (FULL SCREEN)
228
OPERATING SYSTEM
222
PROCESSOR
202
ROM
203
BIOS
205
206
MASS STORAGE
208
DISPLAY DEVICE
210
CURSOR CONTROL
212
COMM. INTF
214

Fig. 2

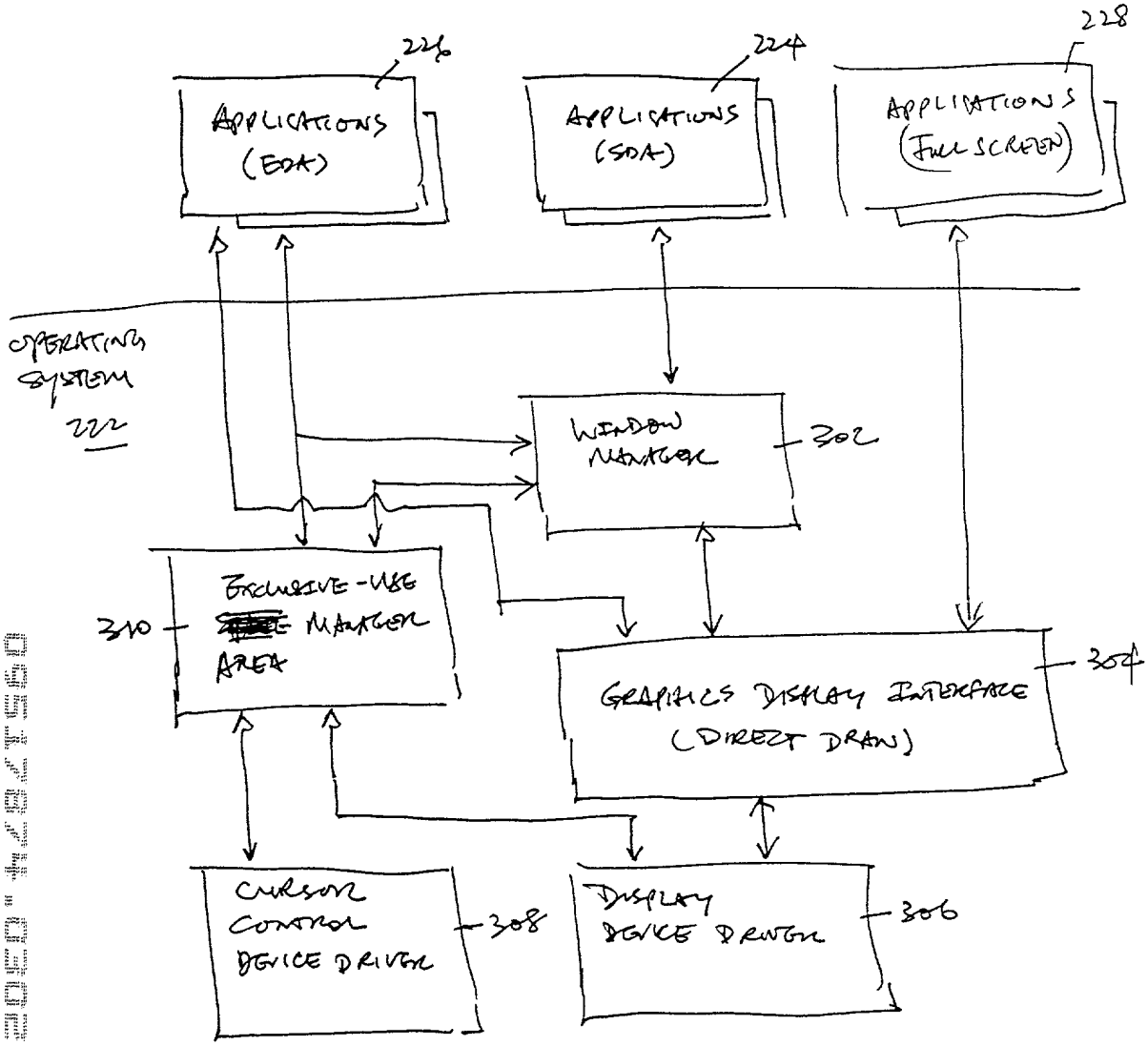
226
APPLICATIONS (EDA)
224
APPLICATIONS (SDA)
228
APPLICATIONS (FULL SCREEN)
OPERATING SYSTEM 222
WINDOW MANAGER
302
EXCLUSIVE-USE MANAGER AREA
310
GRAPHICS DISPLAY INTERFACE (DIRECT DRAW)
304
CURSOR CONTROL DEVICE DRIVER
308
DISPLAY DEVICE DRIVER
306

Fig. 3

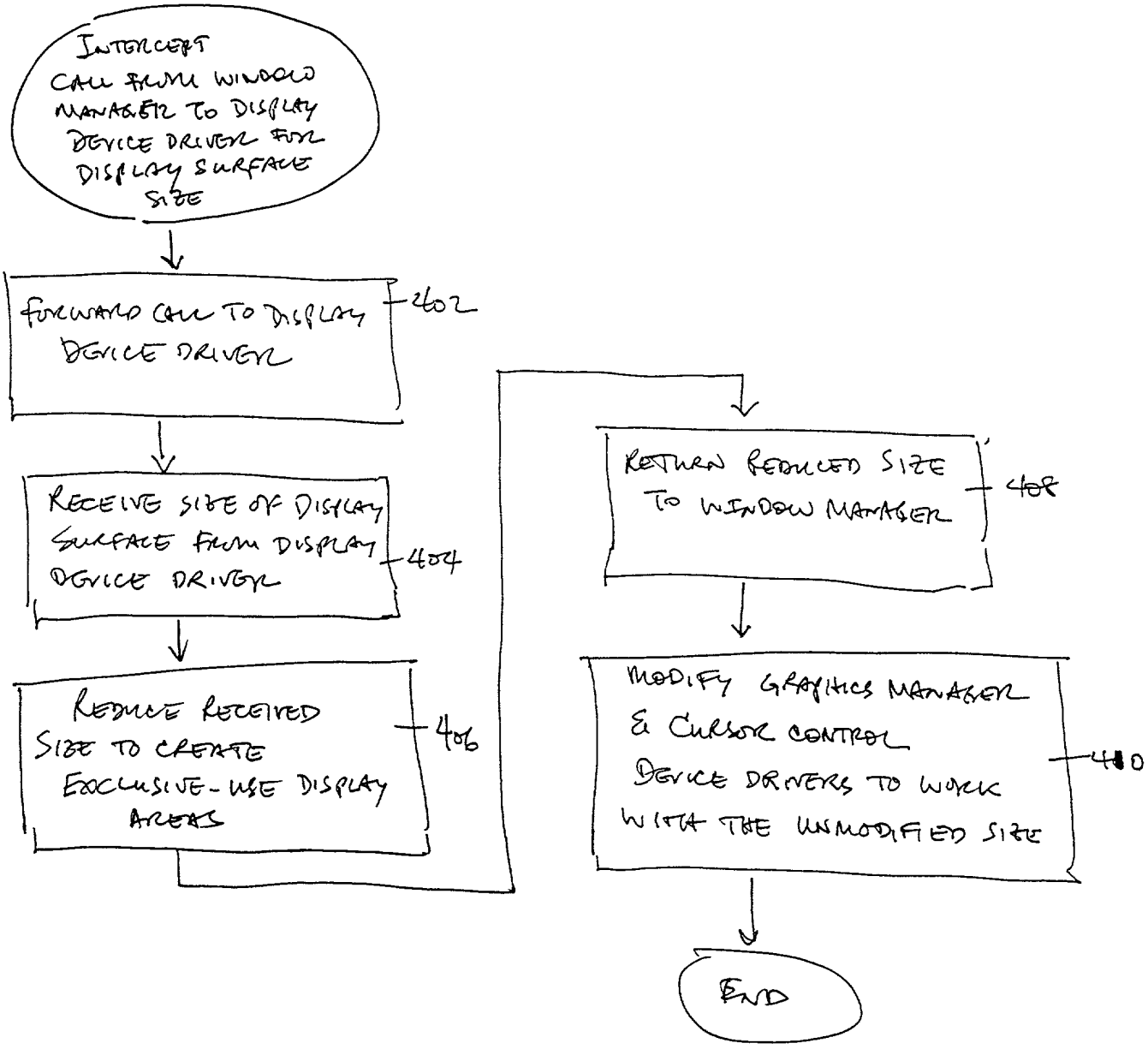
INTERCEPT CALL FROM WINDOW MANAGER TO DISPLAY DEVICE DRIVER FOR DISPLAY SURFACE SIZE
FORWARD CALL TO DISPLAY DEVICE DRIVER
402
RECEIVE SIZE OF DISPLAY SURFACE FROM DISPLAY DEVICE DRIVER
404
REDUCE RECEIVED SIZE TO CREATE EXCLUSIVE-USE DISPLAY AREAS
406
RETURN REDUCED SIZE TO WINDOW MANAGER
408
MODIFY GRAPHICS MANAGER & CURSOR CONTROL DEVICE DRIVERS TO WORK WITH THE UNMODIFIED SIZE
410
END

Fig. 4a

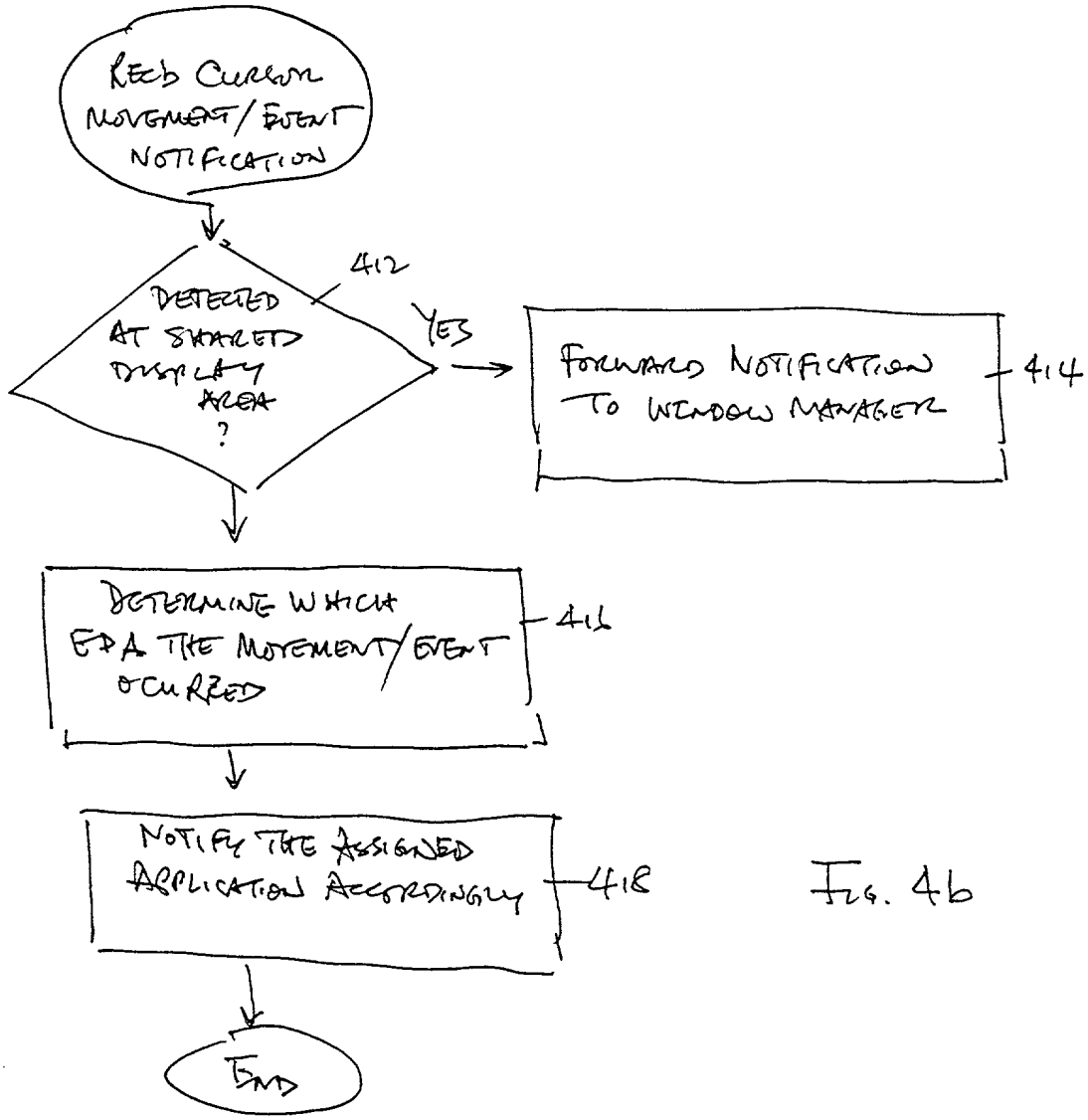
RECD CURSOR MOVEMENT/EVENT NOTIFICATION
412
DETECTED AT STARTED DISPLAY AREA ?
YES
FORWARD NOTIFICATION TO WINDOW MANAGER
414
DETERMINE WHICH EDA THE MOVEMENT/EVENT OCURRED
416
NOTIFY THE ASSIGNED APPLICATION ACCORDINGLY
418
END

Fig. 4b

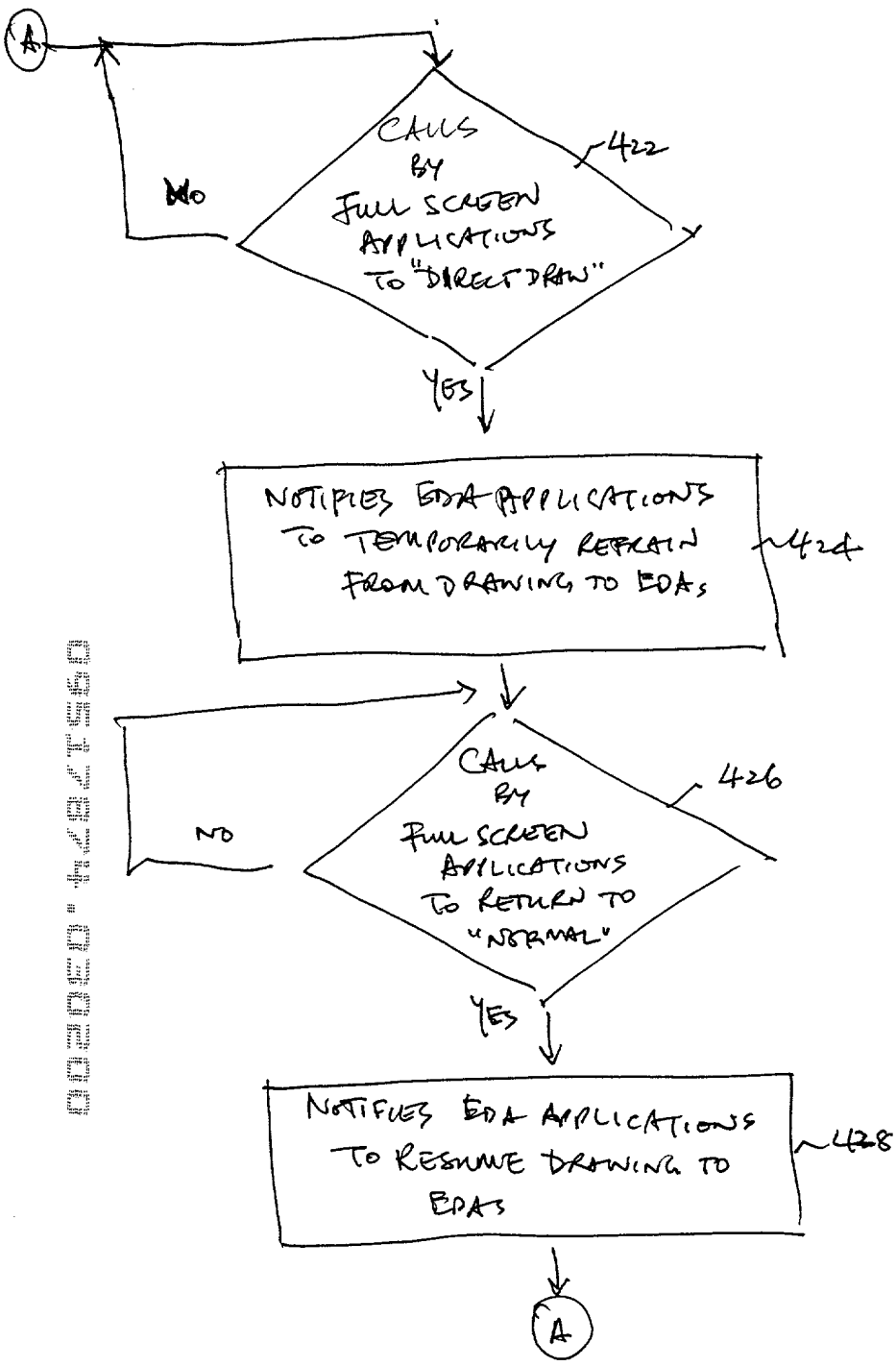
A
CALLS BY FULL SCREEN APPLICATIONS TO "DIRECT DRAW"
422
NO
YES
NOTIFIES EDA APPLICATIONS TO TEMPORARILY REFRAIN FROM DRAWING TO EDAs
424
CALLS BY FULL SCREEN APPLICATIONS TO RETURN TO "NORMAL"
426
NO
YES
NOTIFIES EDA APPLICATIONS TO RESUME DRAWING TO EDAs
428
A

FIG. 4C

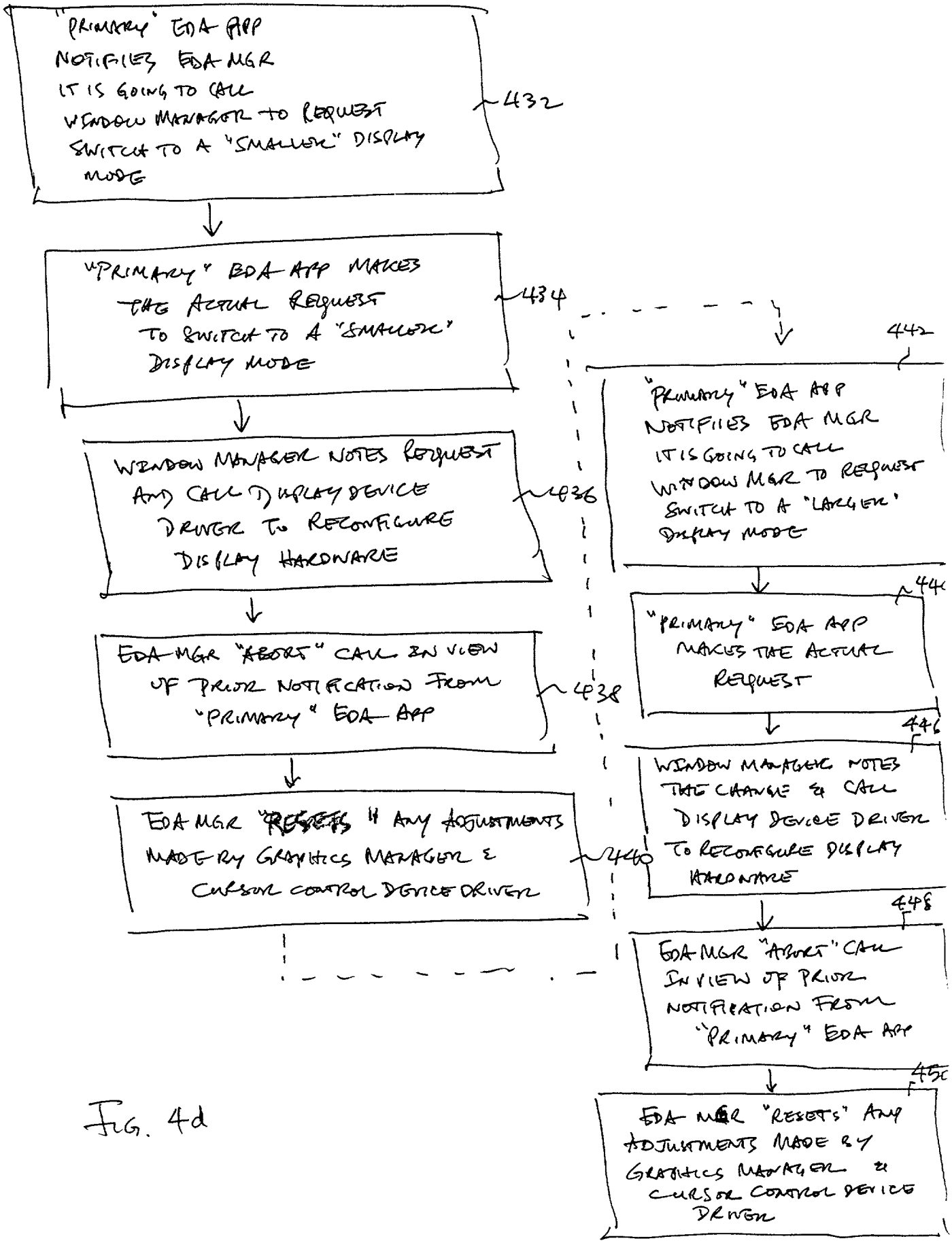
"PRIMARY" EDA APP NOTIFIES EDA MGR IT IS GOING TO CALL WINDOW MANAGER TO REQUEST SWITCH TO A "SMALLER" DISPLAY MODE
432
"PRIMARY" EDA APP MAKES THE ACTUAL REQUEST TO SWITCH TO A "SMALLER" DISPLAY MODE
434
WINDOW MANAGER NOTES REQUEST AND CALLS DISPLAY DEVICE DRIVER TO RECONFIGURE DISPLAY HARDWARE
436
EDA MGR "ABORT" CALL IN VIEW OF PRIOR NOTIFICATION FROM "PRIMARY" EDA APP
438
EDA MGR "RESETS" ANY ADJUSTMENTS MADE BY GRAPHICS MANAGER & CURSOR CONTROL DEVICE DRIVER
440
"PRIMARY" EDA APP NOTIFIES EDA MGR IT IS GOING TO CALL WINDOW MGR TO REQUEST SWITCH TO A "LARGER" DISPLAY MODE
442
"PRIMARY" EDA APP MAKES THE ACTUAL REQUEST
444
WINDOW MANAGER NOTES THE CHANGE & CALLS DISPLAY DEVICE DRIVER TO RECONFIGURE DISPLAY HARDWARE
446
EDA MGR "ABORT" CALL IN VIEW OF PRIOR NOTIFICATION FROM "PRIMARY" EDA APP
448
EDA MGR "RESETS" ANY ADJUSTMENTS MADE BY GRAPHICS MANAGER & CURSOR CONTROL DEVICE DRIVER
450

Fig. 4d

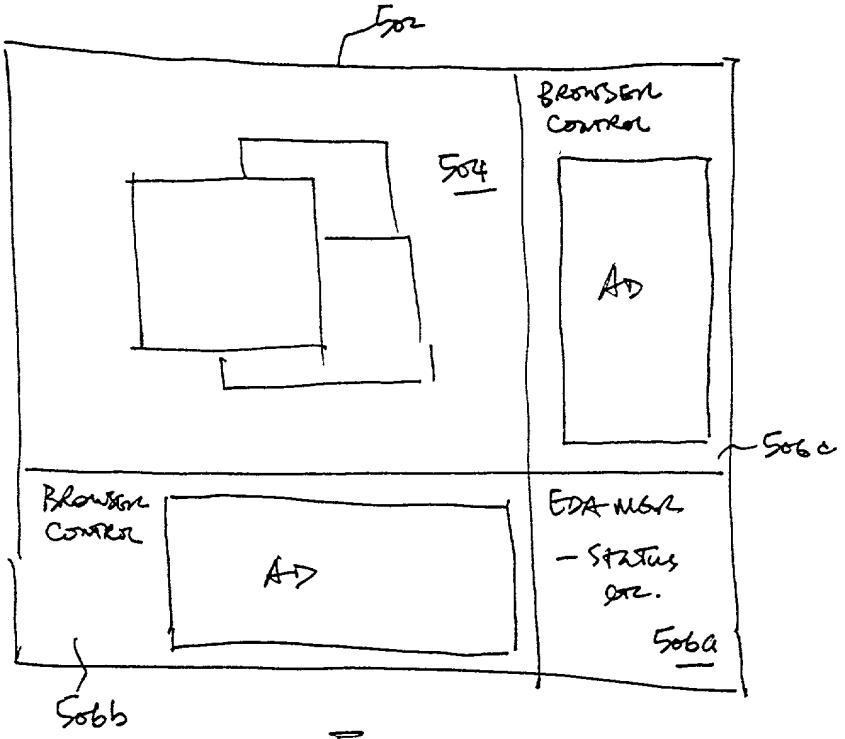
502
BROWSER CONTROL
504
AD
506c
BROWSER CONTROL
AD
EDA MGR - STATUS etc.
506a
506b

FIG. 5

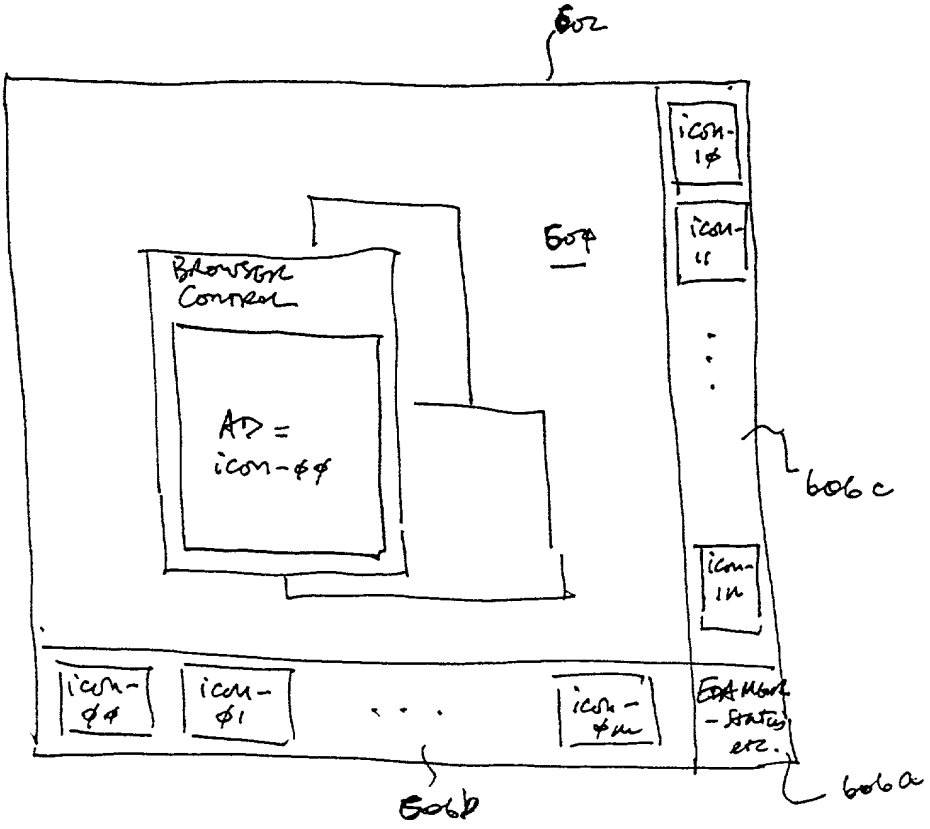
602
icon-1φ
icon-11
504
BROWSER CONTROL
AD = icon-φφ
606c
icon-1n
icon-φφ
icon-φ1
icon-φn
EDA MGR - STATUS etc.
606a
606b

FIG. 6

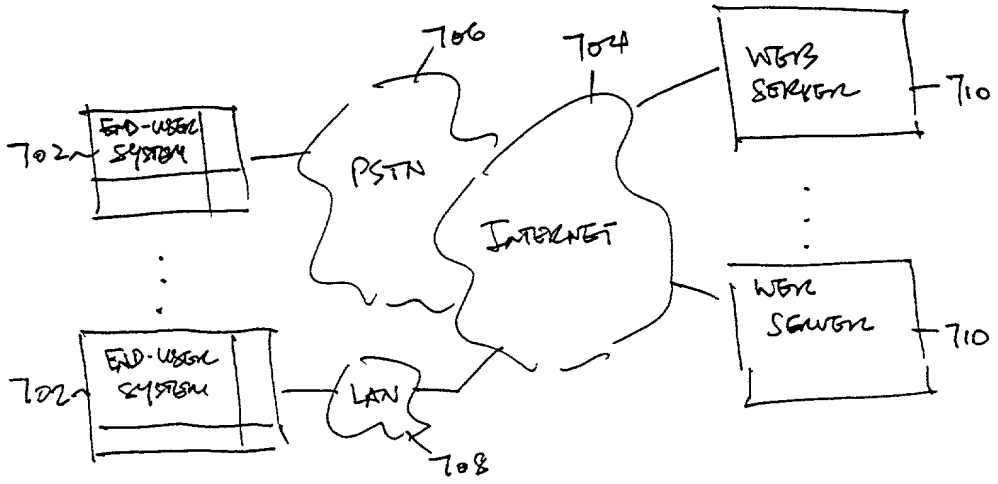
706
704
WEB SERVER
710
END-USER SYSTEM
702
PSTN
INTERNET
WEB SERVER
710
END-USER SYSTEM
702
LAN
708

FIG. 7

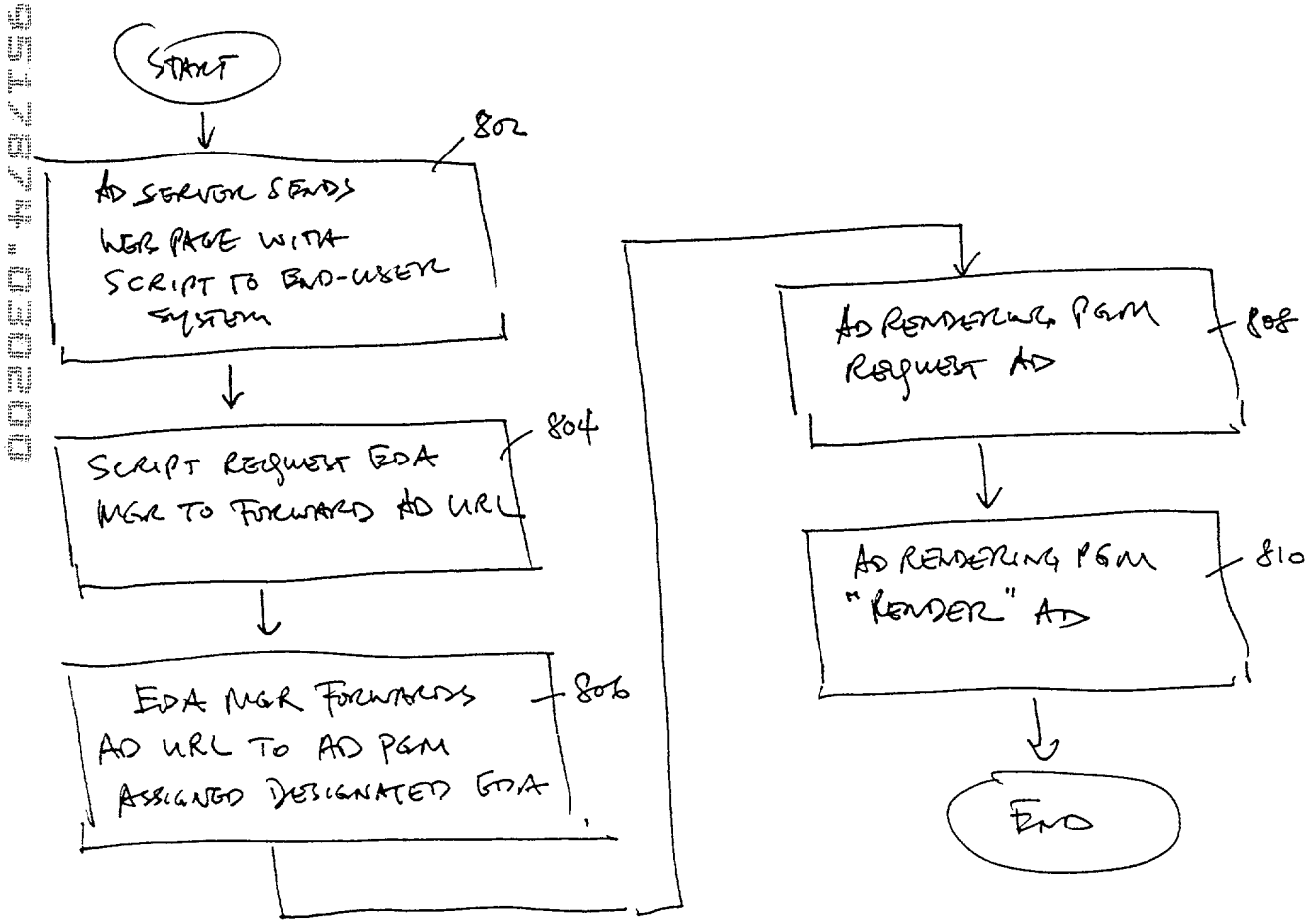
START
AD SERVER SENDS WEB PAGE WITH SCRIPT TO END-USER SYSTEM
802
SCRIPT REQUEST EDA MGR TO FORWARD AD URL
804
EDA MGR FORWARDS AD URL TO AD PGM ASSIGNED DESIGNATED EDA
806
AD RENDERING PGM REQUEST AD
808
AD RENDERING PGM "RENDER" AD
810
END

FIG. 8

Attorney's Docket No.: 03646.P013x PATENT

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below, next to my name.

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

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the specification of which

XX is attached hereto.
_____ was filed on _____ as
United States Application Number _____
or PCT International Application Number _____
and was amended on _____.
(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment referred to above.

I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No

I hereby claim the benefit under title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below

(Application Number)	Filing Date
(Application Number)	Filing Date

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

09/344,409 (Application Number)	June 24, 1999 Filing Date	Pending (Status -- patented, pending, abandoned)
(Application Number)	Filing Date	(Status -- patented, pending, abandoned)

I hereby appoint Farzad E. Amini, Reg. No. P42,261; Aloysius T. C. AuYeung, Reg. No. 35,432; Amy M. Armstrong, Reg. No. 42,265; William Thomas Babbitt, Reg. No. 39,591; Carol F. Barry, Reg. No. 41,600; Jordan Michael Becker, Reg. No. 39,602; Bradley J. Bereznak, Reg. No. 33,474; Michael A. Bernadicou, Reg. No. 35,934; Roger W. Blakely, Jr., Reg. No. 25,831; Gregory D. Caldwell, Reg. No. 39,926; Kent M. Chen, Reg. No. 39,630; Lawrence M. Cho, Reg. No. 39,942; Yong S. Choi, Reg. No. P43,324; Thomas M. Coester, Reg. No. 39,637; Roland B. Cortes, Reg. No. 39,152; Barbara Bokanov Courtney, Reg. No. 42,442; Michael Anthony DeSanctis, Reg. No. 39,957; Daniel M. De Vos, Reg. No. 37,813; Robert Andrew Diehl, Reg. No. 40,992; Tarek N. Fahmi, Reg. No. 41,402; James Y. Go, Reg. No. 40,621; Richard Leon Gregory, Jr., Reg. No. 42,607; Dinu Gruia, Reg. No. P42,996; David R. Halvorson, Reg. No. 33,395; Thomas A. Hassing, Reg. No. 36,159; Phuong-Quan Hoang, Reg. No. 41,839; Willmore F. Holbrow III, Reg. No. P41,845; George W Hoover II, Reg. No. 32,992; Eric S. Hyman, Reg. No. 30,139; Dag H. Johansen, Reg. No. 36,172; William W. Kidd, Reg. No. 31,772; Michael J. Mallie, Reg. No. 36,591; Andre L. Marais, under 37 C.F.R. § 10.9(b); Paul A. Mendonsa, Reg. No. 42,879; Darren J. Milliken, Reg. 42,004; Thinh V. Nguyen, Reg. No. 42,034; Kimberley G. Nobles, Reg. No. 38,255; Michael A. Proksch, Reg. No. 43,021; Babak Redjaian. Reg. No. 42,096; James H. Salter, Reg. No. 35,668; William W. Schaal, Reg. No. 39,018; James C. Scheller, Reg. No. 31,195; Anand Sethuraman, Reg. No. P43,351; Charles E. Shemwell, Reg. No. 40,171; Maria McCormack Sobrino, Reg. No. 31,639; Stanley W. Sokoloff, Reg. No. 25,128; Allan T. Sponseller, Reg. No. 38,318; Judith A. Szepesi, Reg. No. 39,393; Vincent P. Tassinari, Reg. No. 42,179; Edwin H. Taylor, Reg. No. 25,129; George G. C. Tseng, Reg. No. 41,355; Lester J. Vincent, Reg. No. 31,460; John Patrick Ward, Reg. No. 40,216; Stephen Warhola, Reg. No. 43,237; Charles T. J. Weigell, Reg. No. 43,398; Ben J. Yorks, Reg. No. 33,609; and Norman Zafman, Reg. No. 26,250; my attorneys, and James A. Henry, Reg. No. 41,064; Daniel E. Ovanezian, Reg. No. 41,236; Glenn E. Von Tersch, Reg. No. 41,364; and Chad R. Walsh, Reg. No. 43,235; my patent agents, of BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP, with offices located at 12400 Wilshire Boulevard, 7th Floor, Los Angeles, California 90025, telephone (310) 207-3800, and James R. Thein, Reg. No. 31,710, my patent attorney; with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

Send correspondence to Aloysius T.C. AuYeung, BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP, 12400 Wilshire Boulevard 7th Floor, Los Angeles, California 90025 and direct telephone calls to Aloysius T.C. AuYeung, (503) 684-6200.

(Name of Attorney or Agent)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Sole/First Inventor Swain W. Porter

Inventor's Signature _____ Date 2/29/00

Residence Kirkland, Washington (City, State) Citizenship United States of America (Country)

Post Office Address 12511 89th Ct. NE
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Title 37, Code of Federal Regulations, Section 1.56
Duty to Disclose Information Material to Patentability

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclosure information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclosure all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) Prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made or record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application;

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.